

ITEM 1
MANAGER'S REPORT NO. 51
COUNCIL MEETING 1983 08 08

RE: MANAGEMENT INFORMATION SYSTEMS DEVELOPER

MUNICIPAL MANAGER'S RECOMMENDATION

1. *THAT this report be received for information purposes.*

REPORT

BACKGROUND

Council on 1983 June 20 adopted a recommendation that we hire under contract, for a limited time period, a seasoned individual to develop our Management Information Systems (see Attachment #2, Supplementary Item #18, Manager's Report #44, 1983 June 20).

At that time, the availability of the resource we were seeking was inconclusive, as were the costs and timing of the assignment.

RECRUITING PROCESS FOLLOWED

We have now gone through an extensive, methodical recruiting process whereby we advertised, and circulated terms of reference to interested professionals. Approximately 100 replies were received from individuals asking for further information so that they could determine whether or not they wished to submit a detailed application. Fifty-one responded further with specific proposals. From that group, three individuals and three firms (naming specific individuals) were shortlisted. All six attended an all candidates informational meeting on July 14th and were then required to make a detailed submission describing the methodology that they would use, results expected, time frames, and fee or salary expected.

Each of the six shortlisted candidates were individually interviewed by the Management Committee. In addition, the services of Mr. Doug Louth of Currie, Coopers & Lybrand were used to verify the candidates' overall technical qualifications and to advise the Management Committee accordingly. Reference checks also were made on all of the final candidates.

THE SELECTION

The six finalists all had good to excellent qualifications and, to varying degrees, all of them could be suitable for this assignment. All had basically two things in common in their proposal; namely, that their involvement would conclude with completion of the strategic planning phase and, also, that the resulting long-term strategic plan would identify our information requirements, and what it would take to implement the plan in the form of human resources, hardware and software.

The Municipal Manager, the Management Committee and Mr. Louth have unanimously selected Mr. Robert Liley, senior partner of Robert Liley & Associates. A copy of Mr. Liley's proposal is available in the Municipal Manager's office for those members of Council who may wish to see it. For purposes of this report, however, attached as Attachment #1 is a copy of the executive summary from Mr. Liley's proposal, and Mr. Liley's qualifications summary.

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Mr. Liley will work full time in the Municipal Manager's office on this project. In addition, he intends to supplement that with some of his own support staff. The all-inclusive fee expected is fixed at \$65,000, exclusive of out-of-pocket expenses, which are expected to be minimal. Funds are available from the reserve set up specifically to finance this project.

GENERAL

It is expected that we would begin work on the assignment in September 1983, and have a strategic plan in place before the end of February 1984. This timing will allow us to have a reasonable measure of the human and technical resources we will need to implement the plan, as well as the cost/benefits and the budget implications thereof, so that this issue can be addressed together with other 1984 budget priorities.

Mr. Liley will be responsible to the Municipal Manager for this assignment, and the Management Committee, in its role as the Computer Advisory Committee, will oversee the planning process. Council will be kept informed on the progress of the project.

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THE CORPORATION OF THE DISTRICT OF BURBARY
AN INFORMATION MANAGEMENT STRATEGY

SUBMITTED BY:

ROBERT LILEY AND ASSOCIATES
1983 JULY 22.

I. EXECUTIVE SUMMARY

A. Introduction

The Corporation of the District of Burnaby (the Corporation) is currently facing a set of questions which have confronted many organizations in recent years - how to manage information more effectively in support of current and future Municipal operations to improve overall productivity while providing a more effective level of Municipal services.

In recent years, there have been significant changes in both the management structure and operations of the Corporation. Paralleling these operational changes have been rapid improvements in computer and communications technologies which significantly increase the feasibility and economic viability of various information management options and alternatives.

While the current data processing systems and environment did meet the needs of the Corporation in past years, they are no longer deemed totally effective in meeting projected needs. The present systems vary in age and in design concepts. In addition, the current systems tend to be fragmented as opposed to being part of an overall integrated information network.

A Management Committee, comprised of six senior managers in the Corporation, has been formed recently in response to recommendations contained in Currie, Coopers and Lybrand's September, 1981 report on management information systems. Council and the Management Committee is committed to seeking the most cost-effective way to manage information in support of Corporation goals and objectives and in improving productivity.

These information systems will be used to support Council and management in providing cost-effective municipal services and in managing their provision. Additionally, the information systems will be used to support the integration of an overall Corporation-wide management strategy.

Computers continue to offer significant potential for improving the operations and increasing the productivity of the Corporation while providing improved levels of service to its constituents. This potential will effectively only be fully realized, however, through the development of a comprehensive information management strategy.

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Our experience in assisting a large number of organizations to effectively apply computers to support and enhance the operation and management of the organization clearly indicates that the single most important factor contributing to dissatisfaction with information systems on the part of both management and users is the lack of adequate planning. Consequently, it is most appropriate for the Corporation to call on an impartial and technically qualified consultant to identify an information management strategy, identifying opportunities for streamlining operations through the cost-effective application of both manual and automated information systems.

Equally important with defining cost-effective systems is the development of an implementation strategy that will enable the Corporation to realize the benefits of revised or expanded EDP systems while minimizing the inherent pitfalls and risks.

Our experience indicates that three factors have a major influence in charting the most profitable direction for a company to follow in meeting its information requirements. These factors are: one, the realistic role that computers can play in supporting the operation and management of the business; two, the current stage and level of effectiveness to which an organization has evolved in its use of computers to support its information needs; and three, the ability of the organization to absorb and manage change.

An effective Information Management Strategy must recognize these factors but, equally as important and much more difficult, it must also accommodate them on a dynamic basis. Specifically, an effective information management strategy must reflect the fact that both the contribution that MIS makes in an organization and the levels at which that potential is being realized change over time; and change within a corporate and technological environment which is also evolving.

Accordingly, it is quite prudent for organizations to review, on a periodic basis, the soundness of the MIS direction they are following, and take a fresh look at the appropriateness of current approaches to such issues as:

- Responsiveness to user requirements.
- High pay-off areas for improved system support.

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- Cost-effective application of computers to solving operational/management problems.
- Organization and deployment of resources.
- Policies and controls to enhance the profitable use of computers to support the needs of the organization.
- The implications of cost performance and productivity trends on current directions.

Clearly, management recognizes the value of such an approach and the need to establish a co-ordinated direction which is integrated with the goals and objectives of the Corporation.

At this point in the evolution of computerized information systems within the Corporation, management is presently seeking the assistance of a qualified consultant in developing an information management strategy for the 1980's and 1990's. This strategy will incorporate not only the information systems infrastructure based upon current and projected operational plans and strategies, but also the information processing environment to support the infrastructure.

Robert Liley and Associates has worked with many varied organizations and environments to develop similar information management strategies and it is with this perspective that we offer our professional services to the Corporation of the District of Burnaby.

B. Summary

It is not possible to accurately predict the future in an uncertain environment. But it is possible to minimize the impact of this uncertainty and to ensure the futurity of current decisions through effective analysis and planning.

Undertaking the development and implementation of computer systems which are fully integrated into business

operations is not a trivial task. Unless approached in a thorough, comprehensive and professional manner, the results will be disappointing and, ultimately, costly. Our experience shows that there is a definite "life cycle" to system development activities which, if not recognized and accommodated, can result in significantly increased costs, major re-work and protracted implementation.

The key to the ultimate success of this vital project lies in the series of activities we are proposing be undertaken. This is a very comprehensive study and it may be possible to omit certain areas at this stage thereby shortening the time and costs. However, when it is subsequently determined that it is appropriate to address the major areas omitted at this point, it is likely that there will be significant implications for the systems already implemented, undoubtedly resulting in unplanned re-work and adding substantial overall costs.

In undertaking this engagement, we will be using a methodology we have used in many successful studies of a similar nature. This methodology enables us to produce measurable, meaningful results quickly and manageably.

Our phased approach enables us to:

- Determine what information is needed to manage and operate the Corporation.
- Determine the current status of information management - the strengths and weaknesses.
- Examine the options available for producing the required results in the most cost-effective manner.
- Develop a time-phased implementation plan which will provide management with the ability to implement portions of the Information Management Strategy as appropriate, and not have to commit funds to the implementation of the strategy as a whole.
- Provide management with the ability to update and modify the plan as circumstances change as they will in our highly dynamic society.

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The full participation of Corporation personnel in the study, both through user representation and through management review, will ensure an effective strategy.

Our proposed approach will ensure that the Corporation's needs are met in a timely and cost-effective manner while containing the risks associated with such a significant undertaking.

As a result of this study, the Corporation of the District of Burnaby will receive:

1. A computer-based integrated Information Management Strategy which will provide the information systems necessary to support the effective operation and management of the Corporation now, and for the foreseeable future, at least cost. The plan will serve as a valid basis for directing the EDP activities and guiding the EDP decisions of the Corporation for at least five years.
2. A definition of the computer/communication system specifications and performance characteristics needed to support the recommended system concept and an impartial assessment of the extent to which existing computer systems meet those requirements.
3. An estimate of the benefits of the recommended system concept in terms of cost savings, improved effectiveness and efficiency of operation, and/or increased services.
4. A recommended organization plan and staffing specifications to allow the Corporation to receive full value from the Information Management Strategy.
5. A time-phased implementation schedule covering priority sequencing of system modules, major computer communication characteristics, and organization and staffing activities.
6. A detailed final report to enable the Corporation to move directly into the implementation phase.

QUALIFICATIONS SUMMARY

ROBERT W. LILEY

As Senior Partner with Robert Liley and Associates, Mr. Liley is responsible for providing consulting services and project management expertise to clients at a senior level. In addition to directing the consulting activities of the firm and ensuring that the services provided meet defined standards, he becomes personally active in assignments encompassing strategic EDP planning, senior level feasibility studies, disaster contingency planning, EDP assessments and office automation.

Mr. Liley has over twenty years experience in the information management field. His responsibilities have ranged from system development and implementation through senior management of the information systems function for major corporations. His applications experience includes finance and accounting, inventory control and distribution, manufacturing, payroll/personnel and sales reporting. His industry experience includes consumer products, food processing, construction, land and housing development, insurance, retailing, publishing, pharmaceutical and petroleum.

He was previously Manager, Consulting Services for Systemhouse, Ltd., Vancouver. Prior to joining Systemhouse, Mr. Liley was a principal in the major New York management consulting firm of John Diebold & Associates. He previously held the position of Director, Information Systems for both Arctic Gas Ltd. and Genstar Corporation.

Mr. Liley has significant experience in planning for information systems activities, having undertaken related assignments for major corporations such as General Foods, BACM Industries, Scott Paper, Minneapolis Star and Tribune, Genstar Corporation, Sandoz, Pacific Brewers Distributors, Arctic Gas Ltd., Cities Service, and Grow Group. His depth of experience in this area makes him one of the pre-eminent specialists in strategic EDP planning.

Mr. Liley holds an MBA degree from Pace University in New York.

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RE: MANAGEMENT INFORMATION SYSTEM

RECOMMENDATION

1. THAT we hire, under contract, for a limited time period, a seasoned individual to develop our management information system.

REPORT

BACKGROUND

Council on 1983 March 21 considered the attached report which provides background regarding the development of a management information framework.

The report pointed out the need for adding to our staff resources in order that the development and implementation of our management information system could be assigned to someone accountable for the results, and the need for that individual to have the necessary background and expertise to get the job done.

M.I.S. DEVELOPER - TERMS OF REFERENCE

Terms of reference for a position entitled Management Information Systems Developer have now been prepared and are attached.

THE HIRING PROCESS

Our assessment of the availability of the resource we are seeking, as well as costs and timing, is inconclusive. It is proposed that we advertise, as well as circulate the terms of reference to interested professionals, in the form of a proposal call. This would allow us to obtain feedback, from those interested, on questions such as professional expertise, costs, and timing.

FUNDING

Council in 1983 March approved the creation of a \$100,000 reserve, from 1982 surplus, to be used for the development and implementation of a management information system. This reserve will be used to pay for the services of the M.I.S. Developer.

It is recommended that we hire, under contract, for a limited time period, a seasoned individual to develop our management information system.

PROGRESS REPORTING

Council's adoption of the above recommendation will initiate the recruitment process. The next report to Council will be submitted when the results of the selection process become available. Periodic reports will thereafter be submitted as appropriate.

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RE: MANAGEMENT INFORMATION SYSTEM

RECOMMENDATIONS

1. THAT a \$100,000 reserve be created using 1982 surplus operating funds, to finance the development and implementation of a comprehensive management information system; and
2. THAT a further report be submitted by the Municipal Manager prior to any of the funds being expended.

SUMMARY

The purpose of this report is to obtain approval to establish a \$100,000 reserve from 1982 operating surplus to fund the development and implementation of a comprehensive management information system. The Management Committee has reviewed several approaches which might be taken, and has determined that we do not have the resources to do the job now. In order to reap maximum benefits, development of the information system should begin as quickly as possible.

It is being recommended that we hire, under contract for a limited time period, a seasoned individual to develop our management information system, but the details of how we do this, and the terms of reference, have not yet been developed. If Council approves the funding as recommended, then a further report will be submitted that will give those details.

BACKGROUND

In November 1981 Council considered a report from Currie, Coopers & Lybrand Ltd., on Long Term Planning/Budgeting and Management Information Systems. At that time the decision made was that the corporate planning and budgeting process (PPM) would be implemented, but that the development of the management information system would be held in abeyance. During 1982, as part of the PPM process a considerable amount of time has been dedicated to improving the current management information system in documenting and developing standards, targets, and reporting frequency. The PPM planning process itself identified a number of areas where computer based information systems could be utilized to achieve immediate benefits by transferring clerical activity to the computer, or in terms of better information, or more effective management, e.g. Environmental Health word processing, Parks computerized recreation program registration.

CURRENT SITUATION

The Management Committee has reviewed several approaches that might be taken in developing a management information framework. It has now been resolved that any development work be the result of a well thought out comprehensive plan and based on cost/benefit analyses. "A long range information systems development plan that will set priorities, allocate time and resources, establish a systems development schedule and assign responsibility for results to specific managers will be required. One of the major benefits of such an approach will be the integration of computer-based information systems development with other management information systems, to ensure compatibility and cost-effective investment of time and money."¹

¹Currie, Coopers & Lybrand Ltd. report 1981 September 25, P. 29

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There are many needs being expressed throughout the organization. Some of these may only be wants, or ~~like~~ ^{like} to have, or too expensive to deliver. Others have known benefits. All of these needs should be considered and integrated in the preparation of a long-range information systems development plan. Some of these needs are:

- PPM reporting system to monitor performance.
- Applications for the financial computer:
 - Personnel/Payroll data base
 - accounts payable
 - on-line input/output various locations
- Applications for the mapping computer:
 - Engineering utilities
 - Planning data base
 - on-line input/output various locations
- Parks recreation program registration
- Computerization of inspection information, load, scheduling, etc., e.g. Building, Licence, Engineering, Health, Fire
- Inventory control systems, e.g. Works Yard
- Word processors and micro computers
- Hardware upgrade

DEVELOPING A PLAN

Development of a management information systems plan and the implementation thereof will require assigning responsibility to someone accountable for results. It is considered that we do not have the staff resources nor time available to get the job done, and to ensure that the expected results are achieved. It is recommended that we hire, under contract for a limited time period, a seasoned individual (MIS Developer) to develop our Management Information System. The details of how we do this have yet to be worked out.

It is recommended that the MIS Developer reporting directly to the Municipal Manager assume responsibility for:

- 1) developing a long-range information systems development plan
- 2) providing technical support, including guiding and directing implementation activities
- 3) integrating the process with the present computer based information systems where appropriate

The long-range plan would cover the foreseeable information system needs for at least a five year period. It would focus on the best way to get from where we are now to where we want to go. It would define the cost/benefit of applications. It would document the steps needed to ensure implementation. It would be updated annually and would be a support document to the annual budget. The plan would give Council and the Management Committee the information required to decide on priorities and to put into place the funding needed to deliver the information needs.

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COST/BENEFIT IMPLICATIONS

There are a number of unknowns regarding the MIS Developer position which have yet to be worked out. Such as, terms of reference, availability of the calibre of individual that we need, remuneration that would need to be paid, and length of time needed. Because of the unknowns, and because we will need funding in order to proceed, it is recommended that for now \$100,000 of the 1982 operating surplus be set aside in a separate account to fund this project. The 1982 operating surplus is expected to be just under \$1.2 million. Therefore, the total 1982 operating surplus which we now expect to bring forward into 1983 revenue is \$1.1 million. Of the \$100,000 MIS development fund, it is expected that about \$30/40,000 would be used in 1983.

A regular progress review would be made in order to decide upon our continued course of action. As our plans develop, and implementation begins, it will be necessary to decide how to continue to supply the technical support being delivered by the MIS Developer. Ideally, it would be desirable to train a successor from within our own staff resources.

The benefits gained in adopting a strategic approach to planning for the delivery of our informational needs are difficult to quantify in advance. But by embarking upon a planned approach we can be assured that:

- the priorities for information management will reflect the overall corporate priorities, and avoid development of systems on an ad hoc basis
- our information processing costs will reflect better value for money spent, by making better use of limited financial and human resources
- in the long term, management and Council should be in a better position to make changes in priorities and to monitor and control the level and cost of municipal services delivered.

THE NEXT STEP

If Council approves earmarking \$100,000 of the 1982 surplus towards the development and implementation of a management information system, then the Management Committee will address itself to the specifics of getting the job done. This includes an assessment of the kind of technical resources that we will need, development of terms of reference, availability of resources costs, and timing. When those questions can be more clearly defined, a further report will be submitted to Council. No expenditures will be made from the fund until that has been done.

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MUNICIPALITY OF BURNABY

TERMS OF REFERENCE

FOR

MANAGEMENT INFORMATION SYSTEMS DEVELOPER

- History
- Where we are now
- Where we are going
- What we are lacking
- How do we get where we want to go
- M.I.S. Developer Terms of Reference
- M.I.S. Developer qualifications

1983 June

History

The municipality has made use of computers for the last 30 years. During that period we have advanced to the extent that, in addition to the financial computer which is used primarily for high volume billing and accounting work, we now also have a graphics computer for mapping, and the gathering and manipulation of property based information. In addition, we also have a computer system for library inventory and circulation control. Fairly extensive use is also made of word processors. None of this equipment is integrated.

The need to expand our information base has been identified. Further computerization of various work programs is also being discussed.

Management has reviewed several approaches which might be taken in developing a management information framework, and has resolved that any development work be the result of a well thought out comprehensive plan and based on cost/benefit analyses.

Recognizing that we do not have staff resources to plan and implement a management information system, it has been decided that we hire, under contract for a limited time period, a seasoned individual (M.I.S. Developer) to assist us in developing and implementing our Management Information System.

Where are we now?

- we make widespread use of computers
- we have a large investment in systems and hardware
- we have reasonably sophisticated users
- we have multi-vendor facilities
- we have large centralized data bases
- we have a Computer Advisory Committee
- we do not have integrated systems

Where are we going?

- we will have corporate-wide data bases, i.e. shared information
- we will have user driven computing
- we will have automated offices

What are we lacking?

- long range strategic, tactical/operating planning
- hardware and systems software acquisition guidelines and controls
- user department system support services

How do we get where we want to go?

- Council has taken the first step in allocating funds to be used to retain the services of a seasoned individual (M.I.S. Developer) to assist us in developing our plans and providing user department support.

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M.I.S. Developer - Terms of Reference

It is expected that the M.I.S. Developer reporting to the Municipal Manager would be the main driver in the development of a results-oriented strategic plan to ensure that informational needs of the municipality are being identified and met, and will continue to be met in the future, and that the overall system will support the corporate objectives and priorities of the municipality.

It is expected that the M.I.S. Developer would pursue a strategic planning approach similar to the methodology which has been developed by management consultants, which uses a phased approach to strategic planning designed to:

- Determine where we are now - what strengths and weaknesses.
- Establish what information is needed to manage the business
- Examine the technical data processing options to get the desired results - optimize
- Develop an action plan for the strategy that will get us where we want to go in the optimum manner

In addition to being the main driver in the development of our strategic plan, it is expected that the M.I.S. Developer would work closely with, and provide support services to, users in:

- evaluating and defining current and future needs

The M.I.S. Developer would also be expected to develop hardware and systems software acquisition guidelines and controls; and

Determine and make recommendations as to the extent of system support services that should be provided to user departments on a continuing basis, i.e. the human resources skills that we need now and in the future, including the definition of familiarization and training needs.

M.I.S. Developer - Qualifications

The M.I.S. Developer will be future oriented and will have a proven background in computer services, and management information systems. He will have a sound understanding of management, strong experience in strategic systems development, considerable experience in managing the total systems development and implementation process, including experience in hardware selection, and software development.

